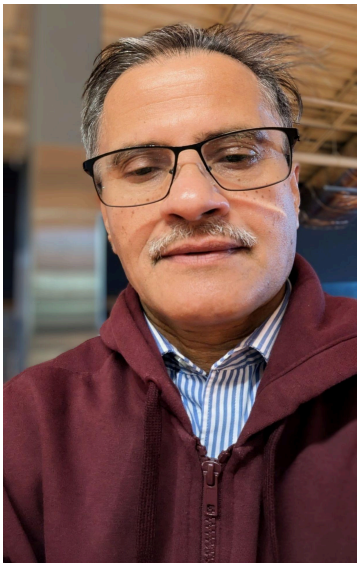
Rice intensification in the Soviet Union

Million tonnes of Kuban rice (1970–1980)

Indrajit Roy

About the author



Indrajit Roy is an agricultural scientist with expertise in rural development and socio-economic empowerment. He was born in Mohanganj, Netrokona district, in 1956. He completed his secondary education from Mohanganj Pilot High School in 1972 and his higher secondary education from Government Anandamohan College, Mymensingh in 1974. In 1976, he went to the then Soviet Union for higher education on a scholarship provided by the Soviet government. He studied at the Kuban State Agrarian University in Krasnodar, now the Russian Federation. He received a Master's degree in Agricultural Science in 1982 and a Ph D in Plant Breeding and Seed Production in 1986. After returning home in 1986, he joined the Bangladesh Agricultural Research Council and worked there as the Chief Scientific Officer until March 2001. He received training on project analysis from the United States Department of Agriculture in 1992. In 1999, he did post-doctoral research at the Department of Plant Breeding at Kyushu University in Fukuoka, Japan. He has been living permanently in Toronto, Canada since 2001. He is working as an international consultant on agricultural research and rural development at various international organizations, including the Food and Agriculture Organization of the United Nations. In his personal life, he is married and has two sons.

Introduction

Rice intensification, in general, means growing more rice with a focused approach. This approach can be embedded in government policies to support farmers with modern production inputs at subsidized costs. Such policies trace their origin to the US-led Green Revolution that began in Asia and Latin America in the early 1960s. Growing more rice requires expanding annual rice-cropped area either by bringing new arable land under rice growing or using the same rice field for growing rice more than once round the year, which is also known as increasing cropping intensity and hence the name rice intensification. In contexts where there is limited scope for expansion of cropped area, the emphasis is placed on increasing cropping intensity along with cultivation of high-yielding rice varieties. Beginning in the early 1960s, the Soviet Union implemented its own rice intensification programme with an approach that had some similarity with the global Green Revolution, for example, the emphasis on expanding the cultivation of high-yielding varieties of rice developed by its own rice research programme.

But it was distinct in other ways. It equally focused on expanding cultivable rice areas in the Southern region which had an ecological advantage for rice cultivation. Because Soviet agriculture was collectivized and state-run, the government had the advantage to provide direct material and technical support to the agricultural farms specializing in rice production. Billions of rubles in state investment were spent in rice area development through drainage of low-lying marshy wetlands, equipping them with irrigation structures and construction of a large water reservoir for supply of irrigation water and protection of human settlements in low-lying areas of the Kuban floodplain from annual flooding.

Historically, rice wasn't a major staple crop in Russia. The word "рис" (pronounced as "ris") appeared in Russia at the end of the nineteenth century, which is a derivative of the English name "Rice". Since then its cultivation was attempted but on a very limited scale. Rice was an expensive food because it was mostly imported. Sporadic attempts to grow rice in Russia were taken from time to time. After the 1917 Revolution, the Soviet Government took the decision to expand rice cultivation in Southern Russia taking into account favourable climatic conditions for rice growing in this region. For this purpose, it created an organization called the Azov-Black Sea Rice Trust and Plavstroy, a hydro-technical construction firm, charged with the responsibility to convert lowlands of the Kuban river delta into a major rice growing area. A veteran military commander of the Civil War, D.P.Zhloba, was put in charge of this organization. The first large-scale rice sowing was carried out in 1930 in an area of 57 hectares in the Tikhovshy village of the Krasnoarmeysky district (район) of the Krasnodar region. In those days, machinery was in short supply, so many farm operations were done manually. Shovels and wheelbarrows were the main tools. By 1931, rice had covered 1,300 hectares; by 1935, 3,600 ha[1].

[1] Зеленский Григорий Леонидович, К Вопросу о Производстве Миллиона Тонн Кубанского Риса, Научный журнал КубГАУ, №70(06), 2011

Expansion of rice cultivation: development of infrastructure

To support rice cultivation with improved production technology and new high-yielding varieties suited to Kuban region's agro-climatic conditions, the Government took a decision to establish a rice-focused research institute in Krasnodar. Its foundation was led by the great plant scientist N.I. Vavilov. In 1929, Vavilov became the first President of the All-Union Academy of Agricultural Sciences (VASKhNIL, Всесоюзная академия сельскохозяйственных наук). In December 1931, he issued a directive to establish the All-Union Scientific-Research Institute of Rice Farming (Всесоюзный научно-исследовательский институт рисового хозяйства, VNIIRH) in Krasnodar in 1931. Vavilov appointed Academician I.D. Sokolov as first Director of the Institute. For initiation of large-scale breeding work, Vavilov handed over about 2,500 accessions of rice stored at the All-Union Institute of Plant Growing (VIR).

Following its establishment, the All-Union Scientific-Research Institute of Rice Farming went through a process of structural transformation reflecting priorities of the Soviet Government. It became the All-Union Experimental Rice Station (Всесоюзная рисовая опытная станция ВРОС, pronounced as VROS)) on 1 February 1935. In 1956, the All-Union Rice Experimental Station was reorganized into Kuban Rice Experimental Station (well known by its Russian acronym KROS, Кубанская рисовая опытная станция). In the spring of 1961, the Station was moved to the village "Belozyornoe (Russian name for white grain, rice)" located in Elizavetinskyi district (район), a major rice growing area of Krasnodar region. Finally on 20 September 1966, the Kuban Rice Experimental Station was transferred to the All-Union Academy of Agricultural Sciences (VASKhNIL). In 1966, structural reform of rice research was stabilized by converting the Kuban Rice Experimental Station into All-Union Rice Research Institute (VNIIR). Therefore, the legacy of rice research in the Soviet Union spreads through VNIIRH/VROS /KROS/VNIIR.

Widespread cultivation of the new high-yielding varieties lifted average yields of rice in the Krasnodar region from 1.5–2.0 t/ha in 1935 to 3.5–4.5 t/ha in 1965. Regional production of rice increased from 30,000 tonnes to 160,000 tonnes. Average rice yield in the Krasnodar region increased 2–3 times and production increased by more than five times over the period 1935–1965.

Intensification of rice production: Soviet Government's policy for agricultural modernization

The decision to intensify rice production in the Soviet Union was rooted in a series of Soviet Government's policy decisions following assumption of power by Leonid Ilyich Brezhnev in October 1964. The new leadership launched a review of the performance of the country's collectivized /state-run agriculture sector during 1965–1966. The objective was to identify shortfalls, learn from mistakes, and adopt new policy, scientific and technical measures to increase production and productivity of the farm sector. On 26 March 1965, the Plenum of the Central Committee of the CPSU adopted a resolution titled " On Urgent Measures for the Further Development of Agriculture in the USSR (О неотложных мерах

по дальнейшему развитию сельского хозяйства СССР). The resolution was based on a report with the same title, which the First Secretary of the CPSU, Leonid Ilyich Brezhnev presented at the plenum on 24 March 1965 (shown in the photo below).

ИЗВЕСТИЯ

СОВЕТОВ ДЕПУТАТОВ ТРУДЯЩИХСЯ СССР

№ 72 (14851) Год издания 49-й | Суббота, 27 марта 1965 г. | Цена 3 коп.

О НЕОТЛОЖНЫХ МЕРАХ ПО ДАЛЬНЕЙШЕМУ РАЗВИТИЮ СЕЛЬСКОГО ХОЗЯЙСТВА СССР

ПОСТАНОВЛЕНИЕ ПЛЕНУМА ЦК КПСС, ПРИНЯТОЕ 26 МАРТА 1965 ГОДА

Выполняя решения октябрьского и ноябрьского Пленумов ЦК КПСС, партия провела большую организаторскую и политическую работу. Восстановлены ленинские принципы построения партийных, советских, профсоюзных и комсомольских органов снизу доверху, ликвидирована разобщенность между промышленными и сельскими организациями. Структура партийных органов приведена в соответствие с Уставом КПСС. Партийные организации имеют теперь необходимые условия для плодотворной деятельности. Решения Пленумов Центрального Комитета единодушно одобрены партией и народом. Советские люди с энтузиаз-

ЦК КПСС и Совету Министров СССР принять соответствующие решения.

Обязать партийные, советские и сельскохозяйственные органы, руководителей министерств и ведомств, промышленных предприятий, колхозов и совхозов провести необходимую организаторскую и политическую работу по выполнению этих решений.

2. Пленум ЦК считает, что успешное осуществление намеченных партией мер по дальнейшему укреплению экономики колхозов и совхозов, повышению материальной заинтересованности тружеников деревни в результатах труда требует коренного улуч-

In his report Leonid Brezhnev summed up main results of the development in the agriculture sector that were achieved over the past years; analyzed the system of procurement of agricultural products; shared his thoughts with regard to strengthening the agriculture sector through investments in capacity building of the collective/state farms. Such investments were proposed to improve supply of production inputs / other materials and accelerate the introduction of modern production technologies and agricultural machinery in farm production. He also emphasized the role science and adoption of best production production practices in increasing overall agricultural production in the country. In his report, Leonid Brezhnev cited inadequate supply of grain products including rice as a critical gap which resulted from a significant reduction of cropped areas under grain crops. The resolution adopted at the March 1965 Plenum of the CPSU's Central Committee became the country's long-term strategic plan for agricultural development. The March Plenum of the CPSU also set the goal of achieving self-sufficiency in rice.

As a follow-up to this meeting, the CPSU Central Committee held another Plenum on 27 May 1966 which was devoted to considering measures to implement the decisions of the March 1965 Plenum. It was sort of charting an Action Plan for the agriculture sector for up to two decades. Soviet leader Leonid Brezhnev presented at this Plenum for discussion a report titled "Мелиорация земель - коренной вопрос создания устойчивого сельскохозяйственного производства в стране (Land reclamation – a key question for creating sustainable agricultural production in the country)". In his report the Soviet leader used statistics to highlight the urgency of the issues the agriculture sector was facing and presented his thoughts on how best to address those issues..

МЕЛИОРАЦИЯ ЗЕМЕЛЬ—КОРЕННОЙ ВОПРОС СОЗДАНИЯ УСТОЙЧИВОГО СЕЛЬСКОХОЗЯЙСТВЕННОГО ПРОИЗВОДСТВА В СТРАНЕ

РЕЧЬ ГЕНЕРАЛЬНОГО СЕКРЕТАРЯ ЦК КПСС ТОВАРИЩА Л. И. БРЕЖНЕВА 27 МАЯ 1966 ГОДА

Over the last decade, average yield of grain crops in the Soviet Union varied from 0.83 tonne/ha to 1.14 tonne/ha and aggregate gross production of grains ranged from 102.6 million tonnes to 152.1 million tonnes. In the backdrop of a far from satisfactory performance in the agriculture sector, particularly wide annual variation of grain yields, Leonid Brezhnev called for measures to be implemented in phases aimed at improving soil fertility to ensure uniform stable yields of grain crops. In this context, he emphasized the role of land reclamation in its broad sense to be extended to all regions of the country. For operational purposes, he defined land reclamation as follows:

- It is the creation of new large areas of irrigated agriculture in the North Caucasus, southern Ukraine, Moldavia, the Volga region, as well as the further development of irrigation in Central Asia and Transcaucasia.
- It is the improvement of natural forage lands in all areas of the country, and the irrigation of pastures in arid regions.
- It includes draining waterlogged lands in the Non-Chernozem zone, liming acidic soils, and clearing fields of shrubs and stones.
- It includes the use of local runoff and groundwater for irrigation, the construction of ponds and reservoirs, and the fight against soil erosion due to flooding.
- It is, finally, streamlining land use so that each plot of agricultural land produces as much produce as possible.

The expected outcome from land reclamation and along with other measures to improve agricultural management practices was steady increase in crop yields and livestock productivity. Leonid Brezhnev linked extensive land reclamation to increasing the gross harvest of wheat, rye, rice, corn, and other cereal crops. He singled out rice to emphasize the role of land reclamation in increasing annual

production of this crop. Following discussions on the report, the Plenum ended on 28 May 1966 with adoption of the resolution titled "О широком развитии мелиорации земель для получения высоких и устойчивых урожаев зерновых и других сельскохозяйственных культур (On the widespread development of land reclamation to obtain high and stable yields of grain and other agricultural crops) (shown in the photo below).

ИЗВЕСТИЯ

СОВЕТОВ ДЕПУТАТОВ ТРУДЯЩИХСЯ СССР

№ 124 (15212) Год издания 50-й | Суббота, 28 мая 1966 г. | Цена 3 коп.

ИНФОРМАЦИОННОЕ СООБЩЕНИЕ

О ПЛЕНУМЕ ЦЕНТРАЛЬНОГО КОМИТЕТА КОММУНИСТИЧЕСКОЙ ПАРТИИ СОВЕТСКОГО СОЮЗА

27 мая 1966 года Пленум Центрального Комитета КПСС продолжал свою работу.

В обсуждении доклада тов. Е. Е. Алексеевского «О широком развитии мелиорации земель для получения высоких и устойчивых урожаев зерновых и других сельскохозяйственных культур» приняли участие тт. А. Н. Аскоченский — академик-секретарь Всесоюзной академии сельскохозяйственных наук им. В. И. Ленина, Е. С. Новоселов — министр строительного, дорожного и коммунального машиностроения.

На Пленуме с речью выступил Генеральный секретарь Центрального Комитета КПСС тов. Л. И. Брежнев.

Пленум Центрального Комитета КПСС единодушно принял постановление «О широком развитии мелиорации земель для получения высоких и устойчивых урожаев зерновых и других сельскохозяйственных культур».

На этом Пленум закончил свою работу.

ПОСТАНОВЛЕНИЕ ПЛЕНУМА ЦК КПСС

О ШИРОКОМ РАЗВИТИИ МЕЛИОРАЦИИ ЗЕМЕЛЬ ДЛЯ ПОЛУЧЕНИЯ ВЫСОКИХ И УСТОЙЧИВЫХ УРОЖАЕВ ЗЕРНОВЫХ И ДРУГИХ СЕЛЬСКОХОЗЯЙСТВЕННЫХ КУЛЬТУР

The resolution provided for an increase over the next decade in the area of irrigated land by 7–8 million hectares and drained land by 15 – 16 million hectares, with the total area of reclaimed land in the country increasing to 37–39 million hectares in 1975. For the Krasnodar region in southern Russia, which was a major rice growing region in the Soviet Union, proposed investments in land reclamation considered building large-scale rice engineering systems. These systems comprised integrated flood control, irrigation and drainage structures. The goal was to greatly expand rice production and make the country self-sufficient in rice within the next few years.

The regional CPSU leadership and the regional government in Krasnodar region (Krasnodar krai) proceeded to implement the party decision by taking several measures. The existing Kuban Rice Experimental Station, as stated above, was upgraded into the All-Union Rice Research Institute (Всесоюзный научно-исследовательский институт риса, ВНИИР or VNIIR) in 1966. It became the science centre to develop new high-yielding varieties of rice, production technology, and training farmers. A new engineering construction firm called Glavkubanrisstroy (Главкубанрисстрой) was established in 1967.

This construction firm was tasked with the responsibility of developing thousands of hectares of arable land suited for rice cultivation. Land development operations included draining lower floodplains of the Kuban river delta and constructing integrated irrigation and flood control infrastructure to prevent

frequent flooding of the settlements along the lower reaches of the Kuban river. For this purpose, it was decided to build a large artificial water reservoir which came to be known as Krasnodar Water Reservoir or Kuban sea. Construction of the reservoir began in 1968. It was officially designated as an All-Union Komsomol Shock Project (Всесоюзная комсомольская ударная стройка) .

According to the traditional Soviet practice, this status used to be assigned to the projects of national importance to ensure they were completed timely, maintaining high quality standards and at the lowest possible cost. These construction projects also had ideological significance — they were intended to serve as an example of the communist approach to labour, meaning the commitment to working hard in the interest of the public good.

Construction of the Krasnodar Reservoir (Kuban Sea) continued for about eight years. In 1972, the Kuban River was dammed, and the reservoir began filling through the feeder canal. It was commissioned on 4 December 1975. Nearly 600,000 hectares, home to over 300,000 people, were protected from almost annual inundation by flooding in the Kuban floodplain. The reservoir covered an area of 420 km². The reservoir's total usable capacity was 23 billion cubic meters, a significant portion of which (up to 3–4 billion cubic meters annually) was used to irrigate rice fields. It created the largest rice-growing base in Europe. The first full rice planting season using water from the reservoir was in 1976 which covered an area of 215,000 hectares of reclaimed and newly developed land. In a decade from 1965 to 1975, irrigated rice area in the Krasnodar region expanded from 40.7 thousand hectares by more than five times.

Despite this impressive increase, the authorities didn't consider it enough because the production target was set at 1.0 million tonnes. The deadline to reach this target was set in 1980. Therefore, on 24 February 1974, the Central Committee of the CPSU and the Council of Ministers of the USSR adopted a resolution "On accelerating the development of the Azov floodplains to further increase rice production in the Krasnodar Territory." This Resolution mandated the construction and commissioning of 100,000 ha new rice systems between 1974 and 1980. It was needed to increase rice production in the region to one million tons. To achieve this goal, the regional party leadership created a spirit of mass mobilization with the slogan "The battle for a million tonne of Kuban Rice (Битва за миллион тонн кубанского риса).

The million tonne target

It was a wonderful time. We were lucky to be witnesses of this historic moment, to experience first hand the extent of mass mobilization in ongoing socialist construction in the USSR. We arrived in Krasnodar in the last week of August 1976 as foreign students to study in the Kuban Agricultural Institute (now Kuban State Agrarian University). We remember large colourful banners hanging across streets, posters and pamphlets with slogans – "За миллион тонн кубанского риса" (For million tonnes of Kuban rice), "Товарищ, что ты сделал для получения миллион тонн кубанского риса" (Comrade, What have you done for producing one million tonne of rice), "Даёшь миллион тонн риса!" ("Give us a million tons of rice!". Such slogans may seem absurd today, but in those days they served the purpose to draw

people together, mobilize them for a cause and create a spirit of unity to achieve overcoming all obstacles. The department of plant physiology and biochemistry of our institute played an important role in this project.

The Head of the Department of plant physiology and biochemistry of the Kuban Agricultural Institute, who was also our teacher, Professor Evgeny Pavlovich Alyoshin became the central figure of this grandiose project. He provided scientific justification for the project and also demonstrated its technical feasibility. Although the Krasnodar regional party chief Sergei Fedorovich Medunov pushed to the Central leadership the ambitious target of one million tonnes of rice, there were serious doubts among many agricultural specialists and rice producers in the region about achieving the target by 1980. The main opponent to the idea was none other than G.A. Romanenko, the Director of VNIIR. He was an economist and clearly understood that a drastic increase of rice-sown areas would disrupt crop rotations and reduce areas under fodder crops and fallow lands which would negatively affect livestock production in rice-focused collective/state farms. To salvage the situation, Professor Alyoshin came forward with the idea of shifting the focus on rapidly increasing yield potential and allowing a small increase in rice areas as a hedge against unfavourable weather conditions affecting the rice growing period.

As a reward for his positive approach, the regional party leadership dismissed Director Romanenko and appointed professor A.P. Alyoshin to the post of the Director of VNIIR in February 1978. It was a sad moment for us. In 1978, we were in the second year of our course. Professor Alyoshin started taking the class on plant physiology with his distinct approach to delivering lectures keeping in mind almost all of his students were foreign born. Almost half of the first lecture he devoted to explaining the advantages of being born and grown up in a socialist society and then switched to subject matter. His lectures were truly enriching and inspiring. Soon we became fans of him. When we told him we were going to miss him, he assured us that despite being Director, he would still come back to take our lecture classes. And he kept his word. The next important figure on VNIIR's scientific team was Dr. Aleksandr Pavlovich Smetanin, the Head of the Plant Breeding Department. I was lucky to get him as my Ph.D. supervisor in 1982.

By 1980, irrigated rice area fed by the Kuban sea reached 256,000 ha. The target yield was set at 5.0.t/ha, because there was a precedence. This yield was achieved in 1975. The production estimated from the expected sown area and expected yield stood at 1.28 million tonnes. The problem was that there was no guarantee of obtaining 5.0 t/ha in 1980. The year 1975 was extremely favourable for rice production in Krasnodar, the rice growing season from March/April to September/October was hazard-free such as rains or prevalence of low temperatures. Average rice yield declined to 4.28 t/ha in 1976 and 4.47 t/ha in 1977. Naturally, it was a cause of great concern among the regional party leadership of Krasnodar Krai. After all, the challenge was to increase rice production from 687,000 tonnes achieved in 1975 to 1.0 million tonnes in five years in 1980 at an annual compound rate of growth of 7.8 percent per year. It required extraordinary efforts. But there was no way for the Krasnodar region's CPSU leadership to compromise on this goal because of its political significance. Failure wasn't an option. In April 1966, the CPSU General Secretary Leonid Brezhnev and Chairman of the Council of

Ministers, Alexei Kosygin visited Krasnodar to oversee the construction of the irrigation system where they held talks with industry leaders and rice growers (shown in the photo below).

VNIIR, the rice research institute, released the high-yielding rice variety Krasnodarskyi 424 (*Oryza sativa* subsp. japonica) in 1971. It was developed by crossing local advanced rice lines with European exotic varieties obtained from VIR to transfer traits like dwarfness, resistance to lodging and diseases. It was a medium-late (120–130 days growth duration), intermediate height, high-yielding variety with yield potential of 5-6 t/ha under irrigation. The variety was moderately resistant to lodging and blast disease. Two other HYVs – Kuban 3, and Dubovsky 129 – were developed during 1970–1980. But the variety Krasnodarskyi 424 was popular among the rice growers. It was grown in about 70 percent of all rice sown areas. Dominance of a single variety in rice fields carried risks, but Professor Alyoshin emphasized its expansion to fully utilize its yield potential.

The new leadership at VNIIR had a clear-headed thinking that science-focused approaches alone wouldn't be adequate to reach the production target of a million tonnes of rice. An equally important emphasis was placed on motivational work and training of rice producers, in which E.P. Alyoshin took a personal lead using innovative approaches. The motivational campaign was kickstarted by the visit of the First Secretary of the Krasnodar regional unit of the CPSU, S.F. Medunov to the Rice Research Institute. He addressed the scientists of the institute explaining the importance of increasing the production of rice in the country. Medunov concluded his speech by making a passionate appeal to all participants of the meeting and to the communists in particular, to help rice growers solve the task set by the Party – to harvest one million tonnes of Kuban rice. Following a brief brainstorming, VNIIR scientists decided to support the regional committee of the CPSU. Besides providing scientific backstopping through development of new HYVs and standardizing production technology for intensive rice production, VNIIR

scientists also figured out the need for material-technical support in terms of machinery, fertilizers, labour, and other inputs.

The existing and newly developed rice areas were located in a total of 78 collective farms, state farms and experimental farms in the Krasnodar region. To support these farms with extra capacities needed to cultivate expanded rice areas, VNIIR Director appealed to all enterprises and organizations of the Krasnodar region to take sponsorship (шефство) of various rice-growing farms, providing effective assistance with labour, equipment, and other resources. As a result, all districts (район), cities, enterprises and organizations of the region became stakeholders of the project by providing some kind of material assistance to the concerned agricultural farms. Motivational campaigns also took off. Even garment manufacturers have launched men's shirts with the slogan "For a million tons of Kuban rice (за миллион тонн кубанского риса)."

This slogan was omnipresent in those days. As we have stated before, it was visible in every town, village, and agricultural farms in the region. This slogan was placed on top of the main building of the VNIIR to communicate its main mission: Обеспечение производсрва 1 миллион тонн риса (Ensuring the production of 1 million tons of rice). To strengthen capacity building of rice farmers, the VNIIR Director supported the organization of mentoring groups (кураторские группы). The Director of the institute personally led one of the mentoring groups, which acted as mentors to rice farmers and provided on-site consultations.

The battle for a million tonnes of Kuban rice entered the final year in 1980. By then, construction of the Kuban rice complex was completed. It was a marvel of land reclamation, hydro-technical and water engineering. Vast rice fields equipped with irrigation canals appeared where once estuaries existed and thickets of centuries-old reeds rustled. The entire ecosystem of the Kuban wetlands was transformed into a productive zone of rice cultivation in the Krasnodar region. The complex included 256,000 hectares of rice fields, six reservoirs, 34,000 kilometers of canals, 185,000 hydraulic structures, 1,235 pumping stations, and approximately 1,350 kilometers of communication lines. In addition, new infrastructure in terms of paved roads, grain elevators, and rice processing plants were also built.

It looked like the stage was perfectly set for not only fulfilling the production target but over fulfilling it with enough wiggle room for management of agricultural farms to implement farm operations. Because to produce 1 million tonnes of rice from a sown area of 256,000 ha, the asking average yield was 3.9 t/ha. But the year 1980 turned out to be exceptionally difficult due to the prevalence of unfavourable weather during the rice growing season. It looked like Mother Nature was hellbent on showing her displeasure with socialist planning of a thing, a large part of which depends on her mercy everywhere in the world.

Prolonged rains in the spring prevented soil preparation and timely entry of seeders into the fields for sowing. Precipitation in April 1980 exceeded the long-term average by 155%, and in May by 148%. The situation was overcome by aerial seeding in areas where mechanized seeding wasn’t possible. A total of 220,000 ha area could be sown with rice. When the crop matured, harvesting was equally challenging.

In September, 114 mm of precipitation fell which exceeded the norm 38 mm by 300 percent and 113 mm in October exceeding the norm 48 mm by 245.6 percent. The Krasnodar regional administration deployed all resources it could mobilize to finish harvesting. The organizations sponsoring rice growing firms provided tremendous support.

They deployed 1,500 tractors, 540 combines, 1,300 tractor trailers, 5,400 trucks, 500 maintenance vehicles, and 450 reapers. With the completion of harvesting, the battle for a million tonnes of Kuban rice came to an end. The gross harvest of rice paddy in the Krasnodar region according to some sources amounted to 1.006 million tonnes. According to others, it was 1.008 million tonnes from an harvested area of 220,000 ha with an average yield of 4.58 t/ha. For comparison, the average yield of rice in 1980 was 2.019 t/ha in Bangladesh, 4.134 t/ha in China, 2.000 t/ha in India, 4.946 t/ha in the US, and 5.128 t/ha in Japan (FAOSTAT). The results could have been more impressive with yields approaching 5.0 t/ha, if sowing could be completed on time in all of the rice areas and harvesting losses due to rains could be avoided.

On 25 November 1980, the newspaper "Sovetskaya Kuban" reported in the headline “Есть миллион тонн Кубанского риса”, which meant “A million tonnes of Kuban rice is a reality”. The publication stated: "All the workers of Kuban, as one, have fought for the past 14 years to achieve this victory. Truly, a victory of humans over nature. At the call of the Communist Party and the Soviet government, the workers accomplished a gigantic feat of labour”. On this occasion, the region received a greeting from General Secretary of the CPSU Central Committee L. I. Brezhnev. That same day, a rally, a festive procession, and festivities took place in Krasnodar. The delegation from the Krasnodar regional unit of the CPSU led by the First Secretary S.F. Medunov reported this achievement to the 26th Congress of the CPSU held in February 1981.

In the years following this success, rice production in the Krasnodar region went through a period of stagnation and decline because of historical reasons. It started bouncing back beginning in 2008. The region repeated the record harvest of 1.0 million tonnes of rice from an harvested rice area of 179,400 ha with an average yield of 7.53 t/ha in 2016. But it was a different country then with a different socio-economic system. Its agriculture was de-collectivized and privately owned. No great political campaign was launched. Nobody had any fear about not achieving the one million target. It was just a success driven by personal incentives. The difference was reflected in average yields: it was 4.58 t/ha in 1980, but 7.53 t/ha in 2016. For comparison, average rice yield in 2016 was 4.586 t/ha in Bangladesh, 3.740 t/ha in India, 6.856 t/ha in China, 6.964 t/ha in Japan, 5.097 t/ha in Indonesia, 8.112 t/ha in the US. As we see, the Krasnodar region’s rice yield was one of the highest, second only to the US.